

More Work with Gases Answers

- 1) Your picture should show one (and only one) of the following changes: cut the size of the container in half, increase the speed of your particles, or double the number of particles.
- 2) The diagram of particles moving at 200 K should be moving much faster than the particles moving at 100 K.
- 3) Convert to Kelvin! The temps are really 280 K and 330 K. That is only a 16% increase in temperature, so the speed of the particles should be slightly faster in the hotter picture.
- 4) If the container gets smaller, there is less room for the particles to move. Because there is less room the particles collide more often with each other and the container. More collisions means a higher pressure in the container.
- 5) As the particles inside a container get colder they slow down. When they slow down they collide with themselves and the container less often. The particles outside the container are now colliding with the container more often than the particles inside. The outside particles can now squeeze the container and force it to become smaller.
- 6) If you squeeze more particles into a container the particles will collide more often. More collisions increases the pressure inside the container. This inside pressure is now greater than the outside pressure so the container expands until the inside and outside pressures are equal.
- 7) 0.5103 mL
- 8) 330 mL
- 9) 243 K
- 10) The volume drops by $\frac{1}{3}$ or is 67% of the original volume.
- 11) 0.0208 atm
- 12) 0.777 atm
- 13) 1060 K